COUPP-2L Single Line Power Distribution Diagram
Component List and Notes

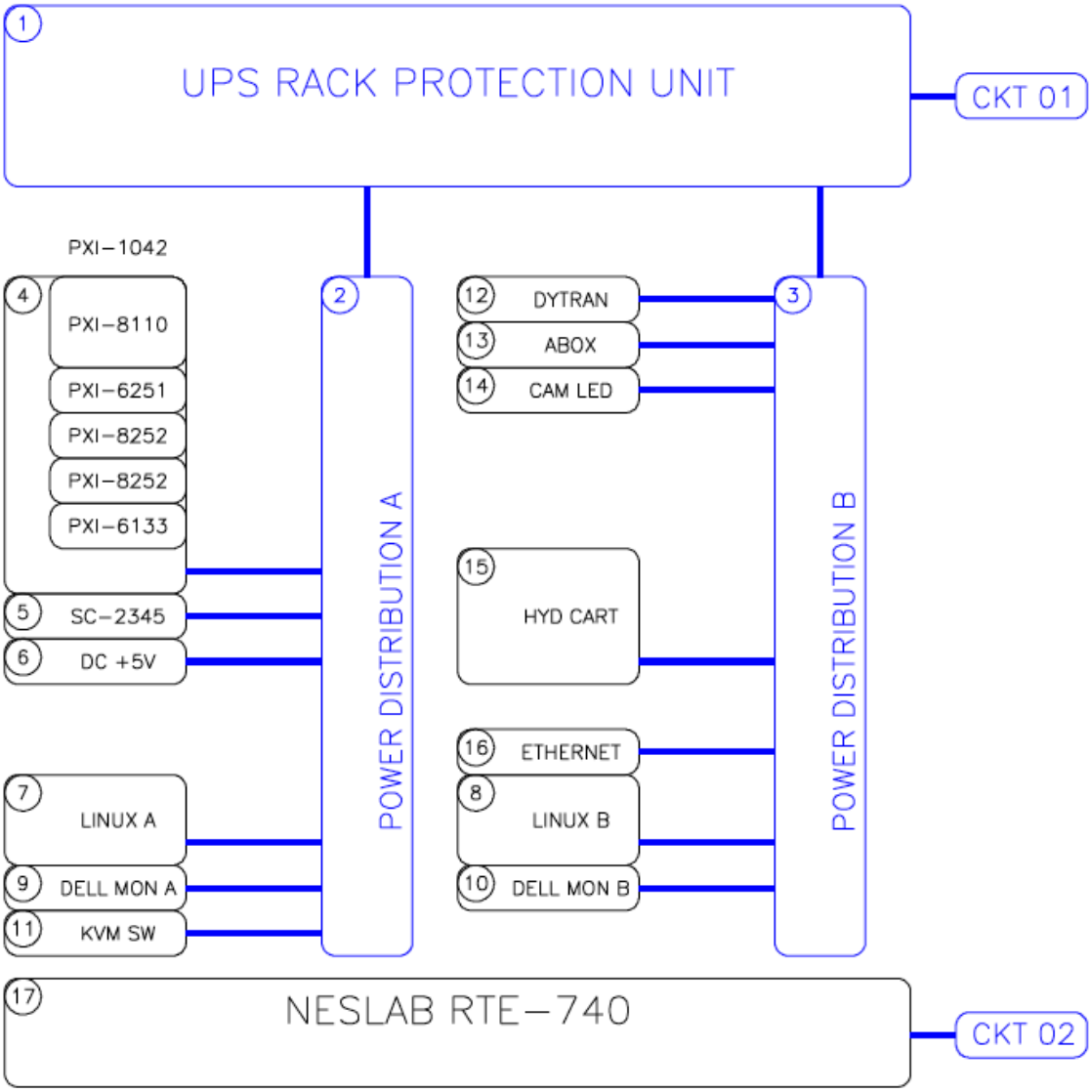

Figure 1: Single Line Electrical Power Distribution Diagram for the COUPP-2L Experiment. All elements indicated are located in two 19-inch relay racks, powered from the single UPS source. The NESLAB RTE-740 (item 17) is a self contained NESLAB circulating heater/chiller unit which requires a separate 120V 20A circuit breaker. The notations “CKT 01” and “CKT 02” are generic to this preliminary document and do not reflect the actual circuit identifiers for the SNOLAB electrical power distribution.

item	Description	Manufacturer	UL[1]	C[2]	DocDB Link
1	Rack Protection Unit	Fermilab	X	X	2.2 KVA UPS
2	Power Strip	TRIPP-LITE	X	X	Switched Power Strip
3	Power Strip	TRIPP-LITE	X	X	Power Strip
4	PXI-1042	National Instruments	X	X	PXI-1042 Chassis
5	SC-2345	National Instruments	X	X	SC-2345 Chassis
6	5V DC Power	LG Electronics	X	X	LG TA-P01WR
7	Linux Computer	KOI Computer	X	X	KOI Computer
8	Linux Computer	KOI Computer	X	X	KOI Computer
9	Dell Monitor	Dell	X	X	DELL Monitor
10	Dell Monitor	Dell	X	X	DELL Monitor
11	BELKIN KVM Switch	BELKIN	X	X	Belkin SOHO
12	DYTRAN Bias Box	DYTRAN	O	O	DYTRAN Bias Box
13	Acoustic Transducer BIAS Box	Fermilab	O	O	Acoustic Bias Box
14	CAMERA/LED driver box	Fermilab	O	O	LED Driver
15	Hydraulic Controls Cart	Fermilab	O	O	Hydraulic Cart
16	Ethernet Switch	TRENDNet	X	X	TRENDNet Switch
17	NESLAB RTE-740	Thermo Scientific	X	X	NESLAB RTE-740

NOTES:

1) *Rack Protection Unit*: This unit is a commercial 2.2 KVA Uninterruptible Power Supply.

2) *Power Strip A:* Commercial 12-outlet rack-mount power distribution strip.
3) *Power Strip B:* Commercial 12-outlet rack-mount power distribution strip.

4) *National Instruments PXI-1004:* This is a commercial PXI chassis with embedded processor and instrumentation modules. The linked National Instrumentation manual is quite complete and includes all pertinent regulatory information.

5) *National Instruments SC-2345:* The National Instruments SC-2345 Signal Conditioning Carrier is a commercial instrumentation wiring chassis for interfacing National Instruments Data Acquisition modules to laboratory instruments. Regulatory information is specified in Appendix I of the SC-2345 Carrier User Manual.

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[1] Compliant with relevant US Standards
[2] Compliant with relevant Canadian Standards

6) *+5V DC power:* This is a digital logic voltage level supplied by a "wall wart" cell phone charger to the SC-2345 unit. The voltage is internally distributed to provide the logic level voltage for a single SCC-DO01 optically isolated digital output. This is high impedance logic level and consumes very little current so the use of a very low current, internally protected supply is convenient and safe.

7) *Linux Computer:* This is a conventional LINUX computer built to Fermiab specifications by KOI computer on a Super SC833T chassis.

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9) *Dell Monitor:* This is a standard commercial DELL 2408WFP 24 inch flat Panel Display. It is connected to the National Instruments embedded windows processor in the PXI-1044 Data Acquisition Chassis and to the LINUX computer via a BELKIN KVM switch.

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11) *BELKIN KVM Switch:* This unit is a commercial KVM switch allowing sharing of a single monitor, mouse, and keyboard between the NI data acquisition computer and the LINUX data storage/network access computer.

12) *DYTRAN Bias Box:* This is a commercial bias/preamplifier unit designed to operate with the DYTRAN 2005V fast pressure transducer (PT3 in our process flow sheet.)

13) *Acoustic Transducer Bias Box:* This is a custom unit designed and fabricated by the Fermilab Particle Physics Division EE Department. It provides the +5 and -5 volt bias voltages for preamplifier boards encapsulated in our acoustic transducer packages (AT1 thru AT4 in the process flow diagram.)

14) *CAMERA/LED Interface Box:* This is a custom unit designed and fabricated by Martin Hu of the Fermilab Accelerator Division. This unit interfaces the camera control signals, distributing the camera trigger signal and enabling current flow through the LED array when either camera is active.

15) *Hydraulic Controls Cart:* The hydraulic controls cart is a custom unit designed and fabricated by the Fermilab Particle Physics Division Technical Centers Department. From an electrical standpoint, it is a simple box containing an Automation Direct PLC unit along with a motor controller and instrumentation wiring.

16) *ETHERNET:* This is a commercial TRENDNet Ethernet Switch.

17) *NESLAB RTE-740:* This is a commercial circulating heater/chiller unit.